

CLAIMS

What is claimed is:

5 1. A method for improving liquidity of transactions for a first plurality of contracts for a pari-mutuel (PM) pool or an auction, the method comprising the steps of:
 providing a complete set including a second plurality of contracts corresponding to
the first plurality of contracts, the complete set guaranteeing at least an initial settlement
value at at least one particular time, the complete set corresponding to a settlement value, the
10 settlement value being determined based upon the initial settlement value.

 2. The method of claim 1 wherein the settlement value is determined based on
the initial settlement value and an interest rate effect, if necessary, wherein the interest rate
effect includes an adjustment in a present value based upon an interest rate, the initial
15 settlement value, and a time between the at least one particular time and the settlement value
being determined.

 3. The method of claim 1 wherein each of the plurality of contracts matures
upon at least one particular event occurring and wherein the complete set corresponds to at
20 least the settlement value regardless of whether the at least one particular event occurs for
any of the plurality of contracts.

 4. The method of claim 1 wherein the providing step further includes the step
of:

converting the first plurality of contracts to the second plurality of contracts.

5 5. The method of claim 4 wherein the first plurality of contracts are for a PM pool, wherein the settlement value corresponds to a value of the PM pool, and wherein the converting step further includes the steps of:

 determining a PM payoff ratio (PMPR) for each of the first plurality of contracts; and
 determining a first quantity and first price of each of the second plurality of contracts
corresponding to one of the first plurality of contracts utilizing the PMPR ratio for each of
the first plurality of contracts, a notional for each of the first plurality of contracts and a held
10 quantity for each of a plurality of market participants holding a portion of the first plurality
of contracts.

 6. The method of claim 5 wherein a portion of the first plurality of contracts are
divided contracts.

15 7. The method of claim 1 further comprising the step of:
iteratively determining the first plurality of contracts for the PM pool or auction.

 8. The method of claim 7 wherein the iteratively determining step further
20 includes the steps of:

 forming an initial PM pool using a plurality of orders, a portion of the plurality of
orders having a plurality of price limits;

 determining a PMPR ratio and thus Implied Contract Price for each of the first

plurality of contracts;

comparing the plurality of price limits against the implied contract price for a portion of the first plurality of contracts corresponding to the portion of the plurality of orders, thereby producing a plurality of price differentials;

at least partially removing an order of the plurality of orders from the initial PM pool having a largest price differential of the plurality of price differentials.

9. The method of claim 8 wherein the iteratively determining step further includes the steps of:

repeating the determining, comparing and at least partially removing steps until a desired PM pool is achieved; and

optionally expand the desired PM pool to account for netting of at least one short order and at least one long order.

10. The method of claim 7 wherein the iteratively determining step further includes the steps of:

netting at least one short order and at least one long order.

11. The method of claim 10 wherein the netting step further includes the steps of:
forming a miniature PM pool using only the at least one long order;
determining whether one of the at least one short order can be added to the miniature PM pool without reducing the miniature PM pool below zero; and

adding one of the at least one short order to the miniature PM pool if it is determined

that the one of the at least one short order can be added without reducing the miniature PM pool below zero.

12. The method of claim 10 wherein the netting step further includes the steps of:
obtaining at least one PMPR for a miniature PM pool including the at least one long order;

determining at least one value for the at least one short order based upon the at least one PMPR;

adding the at least one value for the at least one short order to the miniature PM pool.

13. The method of claim 10 wherein the netting step further includes the steps of:
performing last mileage shorting.

14. The method of claim 5 wherein the iteratively determining step further includes the steps of:

organizing a plurality of orders based upon at least one criterion;

converting the plurality of orders to a first order type;

forming a plurality of complete sets;

determining a plurality of extreme aggregate values for the plurality of complete sets;

removing one of the plurality of complete sets having a desired aggregate value;

repeating the complete set forming, extreme aggregate value determining and removing steps until a desired portion of the plurality of complete sets is removed;

determining at least one auction settlement price;

performing a quantity auction; and
accounting for any net residual.

15. The method of claim 8 wherein the plurality of orders include at least one
combination order having at least one value and wherein the method further includes the
steps of:

determining at least one dummy investable amount (DIA) for a portion of the
plurality of orders;

allocating the at least one value for each of the at least one combination order;

forming a second PM pool based upon the at least one DIA;

providing at least one PMPR for the second PM pool; and

converting the at least one PMPR to at least one implied contract price.

16. The method of claim 8 wherein the plurality of orders include at least one
combination order having at least one value and wherein the method further includes the
steps of:

forming an initial PM pool using at least one single unit order of the plurality of
orders;

determining at least one initial PMPR for the initial PM pool;

adding a portion of the at least one combination order having a highest initial PMPR;

repeating the forming, determining and adding steps as required to account for all of
the at least one combination order;

calculating at least one final PMPR; and

using the at least one final PMPR in allocating the at least one value for each of the at least one combination order.

17. The method of claim 8 wherein the plurality of orders include at least one combination order having at least one value and wherein the method further includes the steps of:

forming an initial PM pool using at least one basic order;

determining at least one initial PMPR for the initial PM pool;

adding a portion of the at least one combination order corresponding to a lowest initial PMPR of the at least one initial PMPR;

iteratively repeating the forming, determining and adding step until each of the at least one combination order is accounted for; and

using the at least one initial PMPR in allocating the at least one value for each of the at least one combination order after each of the at least one combination order is accounted for.

18. The method of claim 8 wherein the plurality of orders include at least one combination order having at least one value, wherein the plurality of orders are based on at least one continuous variable, and wherein the method further includes the steps of:

using a diagonal allocation policy for allocating the at least one value for each of the at least one combination order after each of the at least one combination order is accounted for.

19. The method of claim 8 wherein the plurality of orders include at least one combination order having at least one value, wherein the plurality of orders are based on at least one continuous variable, wherein a portion of the plurality of orders include at least one price limit, and wherein the method further includes the steps of:

5 providing at least one dummy investable amount based on the at least one price limit;
and
adjusting the at least one price limit based on differences between the settlement value and the at least one price limit.

10 20. The method of claim 1 further comprising the steps of:
providing a special purpose vehicle;
allowing a special purpose vehicle to buy and/or sell at least a portion of a complete set.

15 21. The method of claim 20 wherein the allowing step further includes the step of:

allowing the special purpose vehicle to assemble the complete set by purchasing at least the portion of the complete set based upon a sum of offers and the settlement value.

20 22. The method of claim 21 wherein the allowing step further includes the step of:

automatically purchasing the at least the portion of the complete set to assemble the complete set when a sum of offers for the complete set is less than or equal to the settlement

value.

23. The method of claim 20 wherein the allowing step further includes the step of:

5 allowing the special purpose vehicle to sell the at least the portion of the complete set based upon a sum of bids and the settlement value.

24. The method of claim 20 wherein the allowing step further includes the step of:

10 automatically selling the at least the portion of the complete set to at least one market participant using the special purpose vehicle when a sum of bids for the complete set is greater than or equal to the settlement value.

25. The method of claim 20 wherein the special purpose vehicle is allowed to
15 secure trades when buying and/or selling at least one of the second plurality of contracts.

26. The method of claim 1 wherein at least one bid to buy corresponds to at least one contract of the second plurality of contracts and wherein the allowing step further includes the step of:

20 generating a conditional order to sell a remaining portion of the complete set, the conditional order to sell being based upon the at least one bid, the conditional order having a corresponding condition, the corresponding condition being the at least one bid and the conditional order to sell both being accepted, the special purpose vehicle making at least one

trade of the remaining portion of the complete set when the condition is fulfilled.

27. The method of claim 26 wherein a sum of the at least one bid and a total of at least one price for each of the remaining contracts is less than or equal to the settlement value.

28. The method of claim of 27 wherein the generating step further includes the step of:

generating a zero price bid to provide the at least one bid.

29. The method of claim 20 wherein at least one offer to sell corresponds to at least one contract of the second plurality of contracts and wherein the allowing step further includes the step of:

generating a conditional order to buy a remaining portion of the complete set, the conditional order to buy being based upon the at least one offer, the conditional order having a corresponding condition, the corresponding condition being the at least one offer and the conditional order both being accepted, the special purpose vehicle making at least one trade of the remaining portion of the complete set when the condition is fulfilled.

30. The method of claim 29 wherein a sum of the at least one offer and a total of at least one price for each of the remaining contracts is greater than or equal to the settlement value.

31. The method of claim 20 wherein at least the special purpose vehicle is provided using a computer system.

32. The method of claim 20 wherein a plurality of market participants correspond to at least a portion of the second plurality of contracts, the method further comprising the steps of:

determining a credit risk for each of the plurality of market participants based upon the settlement value and a selling price for each of the second plurality of contracts.

33. The method of claim 32 wherein a portion of the plurality of market participants are short selling a first portion of the second plurality of contracts, and wherein the credit risk determining step further includes the steps of:

determining the credit risk for each of the portion of the plurality of market participants based upon the selling price of each of the first portion of the second plurality of contracts and a winning payout for the contract.

34. The method of claim 33 wherein the credit risk is the winning payout minus the selling price.

35. The method of claim 34 wherein an exchange acts as a custodian for a short margin for each of the plurality of market participants, the short margin being based upon the credit risk.

36. The method of claim 34 wherein the special purpose vehicle acts as a custodian for a short margin for each of the plurality of market participants, the short margin being based upon the credit risk.

5 37. The method of claim 36 wherein the special purpose vehicle places the short margin in an interest bearing account.

38. A method for improving liquidity of transactions for a plurality of contracts for a pari-mutuel (PM) pool or an auction, the method comprising the steps of:

10 obtaining a plurality of orders corresponding to the plurality of contracts;

performing a price auction on the plurality of orders in order to determine a plurality of contract prices for the plurality of orders;

performing a quantity auction, after the price auction, to determine a quantity of the plurality of orders which are qualified.

15 39. The method of claim 38 further comprising the step of:

accounting for a plurality of residual contracts, if any.

20 40. A computer-readable medium containing a program for improving liquidity of transactions for a first plurality of contracts for a pari-mutuel (PM) pool or an auction, the program including instructions for:

providing a complete set including a second plurality of contracts corresponding to the first plurality of contracts, , the complete set guaranteeing at least an initial settlement

value at at least one particular time, the complete set corresponding to a settlement value, the settlement value being determined based upon the initial settlement value.

41. The computer-readable medium of claim 40 wherein the settlement value is determined based on the initial settlement value and an interest rate effect, if necessary, wherein the interest rate effect includes an adjustment in a present value based upon an interest rate, the initial settlement value, and a time between the at least one particular time and the settlement value being determined.

42. The computer-readable medium of claim 40 wherein the providing instructions further includes instructions for:

converting the first plurality of contracts to the second plurality of contracts.

43. The computer-readable medium of claim 42 wherein the first plurality of contracts are for a PM pool, wherein the settlement value corresponds to a value of the PM pool, and wherein the converting instructions further include instructions for:

determining a PM payoff ratio (PMPR) for each of the first plurality of contracts; and

determining a first quantity and first price of each of the second plurality of contracts corresponding to one of the first plurality of contracts utilizing the PMPR ratio for each of the first plurality of contracts, a notional for each of the first plurality of contracts and a held quantity for each of a plurality of market participants holding a portion of the first plurality of contracts.

44. The computer-readable medium of claim 40 wherein a portion of the first plurality of contracts are divided contracts.

45. A computer-readable medium containing a program for improving liquidity of transactions for a plurality of contracts for a pari-mutuel (PM) pool or an auction, the program including instructions for:

obtaining a plurality of orders corresponding to the plurality of contracts;

performing a price auction on the plurality of orders in order to determine a plurality of contract prices for the plurality of orders;

performing a quantity auction after the price auction to determine a quantity of the plurality of orders which are qualified.

46. The computer-readable medium of claim 45 wherein the program includes instructions for:

accounting for a plurality of residual contracts, if any.

47. A system for improving liquidity of transactions for a first plurality of contracts for a pari-mutuel (PM) pool or an auction, the system comprising:

means for providing a complete set including a second plurality of contracts corresponding to the plurality of contracts, the complete set guaranteeing at least an initial settlement value at at least one particular time, the complete set corresponding to a settlement value, the settlement value being determined based upon the initial settlement value.

48. The system of claim 47 wherein the settlement value is determined based on the initial settlement value and an interest rate effect, if necessary, wherein the interest rate effect includes an adjustment in a present value based upon an interest rate, the initial settlement value, and a time between the at least one particular time and the settlement value being determined.

49. The system of claim 47 wherein each of the plurality of contracts matures upon at least one particular event occurring and wherein the complete set corresponds to at least the settlement value regardless of whether the at least one particular event occurs for any of the plurality of contracts.

50. The system of claim 47 wherein the providing means further includes:
means for converting the first plurality of contracts to the second plurality of contracts.

51. The system of claim 50 wherein the first plurality of contracts are for a PM pool, wherein the settlement value corresponds to a value of the PM pool, and wherein the converting means further includes:

means for determining a PM payoff ratio (PMPR) and thus Implied Contract Price for each of the first plurality of contracts; and

means for determining a first quantity and first price of each of the second plurality of contracts corresponding to one of the first plurality of contracts utilizing the PMPR ratio for each of the first plurality of contracts, a notional for each of the first plurality of contracts

and a held quantity for each of a plurality of market participants holding a portion of the first plurality of contracts.

52. The system of claim 50 wherein a portion of the first plurality of contracts are divided contracts.

53. The system of claim 50 further comprising:
means for iteratively determining the first plurality of contracts for the PM pool or auction.

54. The system of claim 53 wherein the iteratively determining means further includes:

means for forming an initial PM pool using a plurality of orders, a portion of the plurality of orders having a plurality of price limits;

means for determining a PMPR ratio for each of the first plurality of contracts;

means for comparing the plurality of price limits against the plurality of Implied Contract Prices for a portion of the first plurality of contracts corresponding to the portion of the plurality of orders, thereby producing a plurality of price differentials;

means for at least partially removing an order of the plurality of orders from the initial PM pool having a largest price differential of the plurality of price differentials.

55. The system of claim 50 wherein the system further includes:

a special purpose vehicle;

allowing a special purpose vehicle to buy and/or sell at least a portion of a complete set.

5 56. A system for improving liquidity of transactions for a plurality of contracts for a pari-mutuel (PM) pool or an auction, the system comprising:

means for obtaining a plurality of orders corresponding to the plurality of contracts;

means for performing a price auction on the plurality of orders in order to determine a plurality of contract prices for the plurality of orders; and

10 means for performing a quantity auction to determine a quantity of the plurality of orders which are qualified.

57. The system of claim 56 wherein the program includes instructions for:

accounting for a plurality of residual contracts, if any.